SYMONS'S
MONTHLY
METEOROLOGICAL MAGAZINE.

CCCLXI.] FEBRUARY, 1896. [PRICE FOURPENCE, or 5s. per ann. post free.

OUR THIRTY-FIRST VOLUME.

IT does not often happen that the same person writes the Introduction to the first, and to the thirty-first, annual volume of a periodical, and it must be still more rare for an Editor to be able to look back upon 360 consecutive monthly numbers and to remember only one which appeared without his personal supervision, and certainly the uniform health which has rendered it possible for me to do so demands thankful recognition.

When starting my small craft I had little encouragement, for a somewhat similar but, in some respects, better manned vessel had been started and had foundered within six months; but I thought that some such periodical was needed, and launched my little bark with a brief Introduction which closed with the following sentence:

> "Lastly, I need hardly say, that its future depends very much upon its readers; if they will send me prompt and full information of any unusual occurrence in their neighbourhood, and if they will (if they think it good) recommend it to their friends, the two essentials of high quality and a paying circulation may be obtained, and so I may be able to enlarge it, though my maxim always is, say everything in as few words as possible."

My readers did help me, and so we have gone on these thirty years, and though of course many have passed away, I see that nine of the writers in the first number (and also the printer) are with us still. As to how the craft has been steered it is not for me to say, but of one thing I am very proud, viz., that (perhaps because it is so small) the *Meteorological Magazine* is not merely taken in, but it is *read*. I try hard to avoid mistakes, but whenever a misstatement occurs, I hear of it, and no Editor could receive a higher compliment.

GENERAL INDEX.

There is one point upon which I should be glad to know the opinion of my readers. Would they like to have a *General Index to the "Meteorological Magazine," Vols. I.–XXX?* It would take a long time to prepare, and it certainly "won't pay." I think that it would be

useful, but my judgment may be biassed. I therefore issue with this number a sort of voting paper so that those who desire it may intimate their wish.

And now with thanks to those who have helped in the past, and relying upon similar aid in the future, I must proceed with that editorial work which has always been a duty and a pleasure.

G. J. SYMONS.

62, *Camden Square, N. W., February 11th*, 1896.

THE MILD WINTER.

THE contrast between the severe frost of February, 1895, and the mildness of January and of the first half of February, 1896, has led to the printing of some very random statements. We give a few facts which will show that, though mild, there has been nothing very exceptional:—

Shade Temperatures at Camden Square, London.

		Absolute Max.	Absolute Min.	Mean Max.	Mean Min.	Mean.
1895	Dec.	56°4	26°1	44°9	35°2	40°0
1896	Jan.	52·7	28·0	45·4	36·5	41·0
1868	Dec.	58·2	31·5	50·7	41·0	45·8
1869	Jan.	56·3	25·0	46·3	35·9	41·1
1876	Dec.	56·6	23·2	47·8	40·4	44·1
1877	Jan.	56·4	28·5	48·5	37·4	42·9
Number of years with higher values than 1895-6.	Dec.	11	13	16	16	17
	Jan.	23	4	11	8	11
1868	Dec.	58·2	31·5	50·7	41·0	45·8
1895	,,	56·4	26·1	44·9	35·2	40·0
1868 warmer by		1·8	5·4	5·8	5·8	5·8
1884	Jan.	55·6	32·2	48·8	39·2	44·0
1896	,,	52·7	28·0	45·4	36·5	41·0
1884 warmer by		2·9	4·2	3·4	2·7	3·0

The temperature of December, 1895, was about 1° above the average, and was therefore in no way remarkable. The temperature of January, 1896, was about 3° above the average, but, as is shown above, has been exceeded in eleven years out of the last 36, or about every third year. In January, 1884, the air temperature never fell to freezing point, and the whole month was 3° warmer than January, 1896.

The fact is, the excessive frost of February, 1895, has impressed the public mind with the idea that our winters are usually something like it. We are very thankful that they are not.

ROYAL METEOROLOGICAL SOCIETY.

THE annual meeting of this Society was held on Wednesday evening, January 15th, at the Institution of Civil Engineers, Mr. R. Inwards, F.R.A.S., President, in the Chair.

The Report of the Council showed that the Society was in a satisfactory condition, 34 new Fellows having been elected during the year.

Mr. Inwards devoted his Presidential address to the subject of "Meteorological Observatories," which he illustrated by means of photography. After describing some ancient observatories, including the Nilometers, and the Tower of the Winds, at Athens, he gave an account of National Observatories, of which the Royal Observatory, Greenwich, was taken as a type. High level observatories were next described, of which that of Mont Blanc was taken as a type. Special reference was also made to the Observatory on the Sonnblick, the high level observatory at Arequipa on the Andes, and that on Ben Nevis. An account was next given of Tower Observatories, together with some of the results obtained from the Eiffel Tower at Paris. Mr. Inwards, in concluding, said: "One can figure to one's self a tower piercing the air from any of the elevated table lands of this country, Salisbury Plain, the Stray at Harrogate, or the downs between Guildford and Dorking,—and from which the most interesting results could not fail to accrue. It is the opinion of M. Vallot, no mean authority, that a high tower is for air observatory purposes equivalent to a mountain station of ten times the altitude; and this is evident when one considers that any mountain must act as an obstacle which thrusts upwards the strata of the atmosphere into a form almost like its own, so that some of the effects are very little different from those observed below; while a tower like the Eiffel Tower thrusts itself into the air without obstructing its movements. It is the boast of the Royal Meteorological Society that it is gradually covering the country with a network of private observing stations, and is collecting together for the enlightenment of all future time, a mass of accurate knowledge on the subject of the changes in our atmosphere, its varying moods, its beating pulses, its calms and its convulsions, so that when the philosopher is born who is destined to unravel all its mysteries, he will have the tools and instruments ready to his hand."

Mr. E. Mawley, F.R.H.S., was elected President for the ensuing year.

THE HIGH PRESSURE IN JANUARY.

In the first place, we have to express our regret at the mistake on p. 181 of our last volume, which requires correction by pasting the annexed slip over the upper portion of the table, and making the one other correction thereon mentioned.

Secondly, we have to record that a second maximum, also exceeding 30·9 inches, occurred at 11 a.m. on January 30th. The following little table contains all the instances of pressure exceeding 30·8 inches at Camden Square since 1858, and clearly shows how very remarkable it was for 30·9 to be exceeded on two occasions *within one month*:—

			in.
1859.....	Jan. 9th	11.40 p.m..... ...	30·830
1873.....	Feb. 18th	11.0 a.m.....	30·846
1879.....	Dec. 23rd	10.0 a.m.....	30·813
1882.. ...	Jan. 18th	10.30 a.m.....	30·975
1896.....	Jan. 9th	9.0 p.m.....	30·934
,, ...	Jan. 30th	11.0 a.m.....	30·927

It is noteworthy that all these maxima occurred between the hours of 9 and 12, *i.e.*, close to the time of maximum barometric tide.

Thirdly, we are very glad to mention that at the meeting of the Royal Meteorological Society on February 19th, Mr. R. H. Scott, F.R.S., will read a paper entitled, "Notes on the recent unusually high Barometer readings in the British Isles."

HIGH MONTHLY MEAN.

In London the mean pressure for the whole of January was very high, the readings, corrected and reduced, give 30·358 in. for 9 a.m. and 30·376 in. for 9 p.m., or (applying the correction for diurnal range) a mean for the month of 30·360 in., which has been exceeded only twice since the Camden Square record began, viz., in January, 1880, when the mean was 30·370 in., and in February, 1891, when it was 30·472 in. It is rather curious that the mean pressure in February, 1891, passed without special notice either in the publications of the Royal Meteorological Society or in the *Meteorological Magazine*—all our space and thought were apparently devoted to the drought.

The following table, compiled chiefly from a very valuable paper by Mr. Storks Eaton in Vol. vi. of the *Quarterly Journal* of the Roy. Met. Soc., and continued to date from our own observations, proves at once that, while pressure in January, 1896, has been remarkable (equalled about once in 15 years), that of February, 1891, was unprecedented as far as records extend.

Monthly Mean Pressures in the vicinity of London of 30·360 *in. or upwards.*

		in.			in.
1779.....	January	30·387	1854.... .	March	30·374
1780.....	December ...	30·401	1880.....	January	30·370
1797.....	February.....	30·400	1891.....	February... ..	30·472
1834.....	December ...	30·364	1896.....	January	30·360
1843.....	,, ...	30·423			

VIOLENT LIGHTNING STROKE IN SOUTH DEVON.

MR CHANDLER, of Torquay Observatory, has favoured us with the cutting from a local paper which we reprint below. It is not easy to follow the narrative, and some statements seem improbable. It would have been both interesting and useful if some of our Devonshire readers had investigated the matter promptly, photographed the damage, and made a plan of the premises. Possibly even now something could be done. The story of the electric ball travelling "in an easterly direction, tearing up the ground in its course, until it reached the small wheel-house," ought to be capable of verification or contradiction even now.

THUNDERSTORM AT BRIXHAM.

WEDNESDAY, DECEMBER 18TH, 1895.

A MAN KILLED, OTHERS INJURED.

A thunderstorm broke over Brixham yesterday morning shortly before ten o'clock. Heavy showers of rain had fallen at intervals, from an early hour up to the time of the storm, when a bright blue sky with heavy white clouds and sunshine existed. The wind, which was blowing very moderately from the S.E., continued without any variation. Two bright flashes of lightning and two terrific peals of thunder were all that were seen or heard in the town generally, but in a field at Furzeham, part of which was occupied as a twine-walk, and where two men and a boy were at work, an electric ball or thunderbolt was observed by them in the west, and to travel in an easterly direction, tearup the ground in its course until it reached the small wheel-house, where the boy sits to turn a small wheel for the spinners. The door of this small house was closed, and the fluid striking it shattered its lower part, and, passing on, knocked a hole right through the wall, and, making its exit through, flew upwards, striking the gable end of the roof of Mr. J. Varwell's ropery, knocking down the masonry and partially unrooting the establishment. It then entered the ropewalk and travelled 20 yards, damaging the side wall in its course, until it reached four men who were at work close together making yarn. The names of the men are William Morey, James Lowe, Edward Mitchell, and Samuel Webber. Morey, who happened to be stooping at the time, was struck on the top of the head and killed instantly; Lowe, who was close to him, was struck across the abdomen and laid helpless, though he never lost consciousness; Mitchell received a severe shock in both legs and was knocked down, but it did not injure him; Webber escaped free. As soon as possible medical aid was sent for, and in a short time Drs. Elliott and Hayward were on the spot, and every effort was made by them to restore animation in Morey but without avail, and his body was conveyed to his home. The injuries to Lowe were of such a nature as to necessitate his being kept at the residence of the foreman of the works until one o'clock, when he was taken home. His condition is critical. A railway porter and another man in the employ of Derry and Co., carriers, both of whom were in the goods shed, received severe shocks. One said he felt dazed and had pains about his body. Fishermen at the moorings in the outer harbour report that the electric fluid ran along the chains on the decks of their vessels, and that on Monday night at sea the crew

of one fishing vessel saw three electric or phosphorescent balls on their mast and rigging. Such are often seen, but seldom more than one at a time. William Morey was single and 38 years of age. Hundreds of persons visited the ground in the neighbourhood of Mr. Varwell's Ropery, where the ground is torn up for upwards of a hundred yards. Such a thing has never been known in the district before.

REVIEWS.

Régime des pluies de la péninsule Ibérique, par M. ALFRED ANGOT—[Excerpt Annales Bureau central Météorologique de France, 1893, Tome 1]. 4to, 38 pp., 4 plates.

Sur le régime pluviométrique de l'Europe Occidentale, par M. A. ANGOT—in Annales de Géographie, No. 19, Oct. 15, 1895. A. Colin and Co., Paris; 8vo, 10 pp., 1 folding coloured map.

M. ANGOT is to be congratulated on having finished a heavy piece of work, which he has apparently spared no pains to make accurate.

The two portions of it which we have now to notice, are to some extent complementary to, and explain, each other.

The task which M. Angot has undertaken is that of ascertaining the mean rainfall of Western Europe—no slight labour in any case, but augmented considerably by the mode in which the work has been done. M. Angot, in the first place, decided that he would get rid of all irregularities due to secular change, by utilizing for all stations the same 30 years (1861-90), and where the record did not cover the full 30 years he has computed the value by differentiation from three or four surrounding stations—and this he has done not merely for the yearly totals but for each month. The result of this is, that whereas there are in the whole of Spain and Portugal only 9 stations of which the records are perfect for the whole 30 years, there are 79 others for which the monthly means for the 30 year period have been computed from all available data. M. Angot is in no way whatever responsible for the shortness of many of these records, and he has made the best of them, but we think that it would have been well to give in the tables on pages B 165 to B 167 the number of years' records upon which the computed values were based. As the table stands, the figures for Burgos, Palencia and Soria look equally important, but though the first and last are based upon observations during 29 years, the mean for Palencia is based upon only two complete years, and the record looks to us so doubtful that we believe that M. Angot would have given better values for Palencia if he had invented them all. Either the number of years from which each mean had been computed should have been stated, or all those based upon less than 15 years should have been printed in different type.

On p. B 176, M. Angot discusses the variation in annual fall from year to year for 21 stations, and brings out some such very startling

results, that we have taken five colums from his table on page B 176, arranging the stations in the order of the amount of their mean rainfall, and adding three columns.

TABLE.

	Mean Rainfall.	Max. yearly fall.	min. yearly fall.	Ratio. $\frac{M}{m}$	Mean Rainfall.	Mean being 100. Max. yearly fall.	Min. yearly fall.
	mm.	mm.	mm.		inches.		
Santiago	1652	2336	942	2·5	65·04	141	57
Bilbao	1247	1728	902	1·9	49·10	139	72
Porto	1226	2110	606	3·5	48·27	172	50
Oviedo	935	1264	640	2·0	36·81	135	69
Guarda	898	1647	457	3·6	35·36	184	51
Gibraltar	822	1383	371	3·7	32·36	168	45
San Fernando	744	1236	390	3·2	29·29	166	52
Lisboa	726	1145	438	2·6	28·58	158	61
Soria	594	851	281	3·0	23·39	143	47
Huesca	591	857	345	2·5	23·27	145	58
Burgos	563	777	320	2·4	22·17	138	57
Campo Maior	560	886	302	2·9	22·05	158	54
Barcelona	537	978	272	3·6	21·14	182	51
Valencia	486	1288	191	6·7	19·13	266	39
Sevilla	471	880	159	5·5	18·54	187	34
Palma	453	669	239	2·8	17·84	148	53
Alicante	446	936	204	4·6	17·56	210	46
Madrid	419	698	259	2·7	16·50	167	62
Murcia	380	765	193	4·0	14·96	201	51
Zaragoza	314	426	215	2·0	12·36	135	68
Valladolid	313	442	142	3·1	12·32	141	45

We do not know whether there is anything in Spain and Portugal different from all other parts of the world, or whether the observations have been wrongly made, but the range between the wettest and the driest years is much above what we have heard of in any other country. Usually the wettest year has scarcely half as much again as the mean, *i.e.*, 150 per cent., but at 12 out of the above 21 stations the ratio exceeded 150, and at three stations exceeded 200, and reached 201, 210 and 266 respectively.

So with reference to dry years, the fall in a single year may in rare cases go down to half the average, or to a ratio of 50, but 6 of these 21 stations go below that, and two of them below 40. In our notice of Dr. Hellmann's work upon the same subject, written nearly 10 years ago (*Met. Mag.*, xxiii. (1888), p. 82), we called attention to the same feature, and there can be no doubt that Central Spain is liable to exceptionally severe droughts.

Here, for instance, is a list of yearly totals, all below seven inches :—

Albacete	1867	...	6·97	Salamanca	1875	...	4·88
Badajoz	1871	...	5·08	Sevilla	1874	...	6·26
Lerida	1882	...	6·58	Valladolid	1875	...	5·59
Palencia	1890	...	6·42				

As regards the means, we have compared the values for stations given both by Dr. Hellmann and by M. Angot, and we find that there are 21; that as to 8 they agree within an inch, and as to 14 they agree within two inches, and in only two cases, Valencia and Porto, do they differ more than three inches (3·2 in. and 4·3 in.); the mean difference is less than half-an-inch.

M. Angot does not like the raininess of the months being indicated by the percentage of the yearly total which falls in each, because the months are of unequal length. We object as strongly as anyone to the shortness of February, and think that posterity will wonder why it has been allowed to be too short for so many years, but as long as the months are as they are, and retain their present names, so long do we think that it would be a pity to attempt to correct for the irregularity. We do not think that at present there is any more simple and effective mode of treatment than the old one of percentages.

However, we must pass on to M. Angot's other paper; and here we have evidence of the mass of work which he must have done, for we have a map with seven shades of tinting for mean rainfall of, roughly, under 16 in., 16 in. to 20 in., 20 in. to 24 in., 24 in. to 32 in., 32 in. to 40 in., 40 in. to 60 in., and over 60 in., and this for the whole of Europe west of the meridian of Rome up to lat. 60° N., and including parts of Germany, east of Berlin, and of Norway, and Sweden. The printing is so sharp, and the scale of the map such, that the boundaries of the areas can be read within two or three miles, and the number of patches representing areas of 20 or 30 square miles indicates how closely the stations of which the means have been computed must have been situated.

The map occupies about 150 square inches, and there are portions where the work is so fine that it would take a week to verify one square inch; therefore we can only speak generally, and that we are glad to do very favourably. We believe it to be the best general map of the rainfall of Western Europe yet issued. There is only one fact which strikes us as improbable, viz.—that very often the isohyetal lines (lines of equal mean rainfall) cross the rivers at approximately right angles; considering that a river is at the bottom of a valley, the effect of elevation would generally tend to make the lines parallel with the rivers rather than perpendicular to them. But, as we have already intimated, it is impossible until the whole of the details are published, to say more than that M. Angot has evidently taken extreme care, and produced a very valuable map. The accompanying text is, of course, accurate, and, besides that, it is pleasantly written, and explains the principal features of the distribution of rain in Western Europe both as regards quantity and seasonal distribution.

We anticipate with pleasure the appearance of the other sections of this great work.

Terrestrial Magnetism: *An International Quarterly Journal.* Published under the auspices of the Ryerson Physical Laboratory, A. A. Michelson, Director; edited by L. A. BAUER, with the co-operation of the following Associates:—C. Abbe, P. Baracchi, W. von Bezold, E. Biese, F. H. Bigelow, C. Börgen, C. Chistoni, W. Doberck, M. Eschenhagen, J. Hann, G. Hellmann, S. C. Hepites, D. A. Goldhammer, A. Lancaster, C. Lagrange, S. Lemström, G. W. Littlehales, J. Liznar, T. C. Mendenhall, T. Moureaux, F. E. Nipher, L. Palazzo, van Rijckevorsel, A. W. Rücker, E. Schering, A. Schmidt (*Gotha*), C. A. Schott, A. Schuster, M. Snellen, E. Solander, I. P. van der Stok, R. F. Stupart, A. de. Tillo, H. Wild. Chicago: The University of Chicago Press. Royal 8vo., 54 pp., plate.

AND so the pole to which all literature on Terrestrial Magnetism is to flow is fixed in Chicago. We have adopted the unusual practice of setting out in full the title page of the new journal, because the title-page is itself as unprecedented as is the publication: never before was such a galaxy of names on the title-page of any periodical, never was the word International more fully deserved. We may further remark that such a journal was very much wanted, and that in the interest of scientific progress we sincerely hope that it may have a long and prosperous career; our only doubt is whether there are in the world enough persons interested in the subject, and capable of following the papers, to make the circulation a financial success We know that some Americans do not hesitate to carry on publications even if they lose money by every number that they issue; we hope that *Terrestrial Magnetism* will be a financial as well as a scientific success; but if not, we hope that some of the rich citizens of Chicago will see to it that Dr. Bauer's spirited attempt does not fail for lack of financial support. Probably the loss, if any, will be borne by the Ryerson Physical Laboratory.

The journal will be in every respect international, even as far as language is concerned, for the prospectus states that though preferably one of the main languages should be used, yet any language which can be printed with Roman characters will be admitted, and in this number the first paper is English (by Dr. Schuster, F.R.S., of Manchester), the second German (by Dr. Schmidt, of Gotha), and the third English (by the Editor). The latter part is mostly English.

The printing and paper are exquisite, and there is an excellent reproduction of the very rare and probably earliest Equal Variation Chart of (?) 1701. Under the head of "Notes," we have a series of very interesting brief notices of nearly all that has occurred of importance in connection with Terrestrial Magnetism during the last six months. All advanced students of the subject must make themselves masters of the papers in this journal, and we trust that there is before it a very long and useful career.

Weather and Disease: *a curve history of their variations in recent years*, by ALEX. B. MACDOWALL, M.A., F.R.Met.Soc. Graphotone Co., London, 1895. Sm. quarto, 82 pages and many diagrams.

MR. MACDOWALL is, quite rightly, a strong advocate for presenting statistics in the form of curves. This is an excellent method, and frequently similarities of the form of curves suggest relations between facts, which relations might otherwise have passed unnoticed. With the object of this work we are in hearty sympathy. The author takes 20 features of weather, makes curves to indicate their intensity and chronological sequence, and he does the same for 16 varieties of disease. We quote four of each as typical:—

WEATHER.	DISEASE.
8 A long wave of temperature	5 Enteric or Typhoid Fever
9 A remarkable winter (1890-1)	6 Diarrhœa and Dysentery
10 The summers of this century	7 Small-pox since 1838
11 Spells of heat and their progression	8 Two centuries of Small-pox.

The book as a whole is very suggestive, but it is more like the reproduction in facsimile of the author's note-book than a published work; the horizontal lines in the diagrams seem to represent the actual lines on the squared paper used by the author, rather than the principal figures of the diagram, and frequently one is puzzled to know what certain figures mean—*e.g.*, on p. 58, referring to scarlet fever, the author says, "The dotted curve reaches wave crests every 4—7 years"; we first read this as implying from 4 to 7 years, but the crests to which he attaches dates are—

	1839	1844	1848	1854	1858	1863	1870	1875	1880
Interval...		4	3	5	3	4	6	4	4

and the mean of these is 4·1.* Again, on p. 61 we were puzzled as to curve *b*, of which no explanation is given except vaguely in the words, "Method as in 1 and 2," so we suppose that it is the enteric fever curve for England and Wales; lastly, on p. 75, "2.'77" indicates the second quarter of the year 1877, but everyone would not recognize that at first.

The author seems to us to love work, and the making of curves, but to do so somewhat in the vague hope that some unexpected relation may turn up. Happily, he is absolutely impartial, of which we will quote an instance. Division 3 of Meteorology is headed, "The best ten days in Summer"; it contains the result of tabulating for every day during June, July, and August for 45 years (therefore 4,140 entries), whether or not rain was measured at Greenwich,

* Perhaps Mr. MacDowall reckons the interval between 1839 and 1844 as 5 years, and so for all the others, this would give the mean of 5·1; but then we should have 4 for the minimum and 7 for the maximum, so that our first interpretation may be the correct one.

taking the mean for each date and subsequently Bloxamizing the curve with averages of 10 days. The result is general irregularity, but a very marked absence of days of rain between June 23rd and July 3rd, and yet the author says (perhaps rightly), "It need hardly be said, however, that no one who is 'weather wise' would build immoderate hopes on this or any other part of summer!" But if, when you have got out a striking result, you are not to build upon it, why take the trouble of getting it out?

TWO REMARKABLE TELEGRAMS.

WE are rather inclined to regard telegrams with suspicion. Two have, however, been published within the last few days, which, if true, are so important that, subject to the above caution, we epitomize their statements.

EXPLOSION OF A METEORITE OVER MADRID.

Reuter's Agency reported from Madrid that on Monday, February 10th, at 9.29 a.m., a vivid glare of blinding light was followed in 1½ minutes by a loud report, the concussion being such as not merely to create a panic, but to break many windows, and in some cases to shake down partitions. The sky was clear, and the sun shining brightly, when a white cloud, bordered with red, was seen rushing from S.W. to N.E., leaving behind it a train of fine white dust. A red tinted cloud was long visible in the E.

If all the statements are correct, we should infer that the meteor was of exceptional magnitude, probably weighing from 100 to 300 lbs., and that it burst within about 15 miles of Madrid, but very probably at a considerable altitude above the soil.

We notice that Reuter's Agency call it an "aerolite." We thought that an aerolite differed from a meteor or meteorite in that the former was chiefly stone, the latter chiefly iron and nickel; but on turning to a dictionary we find no distinction drawn between the two; and worse still, on looking into the best English book upon the subject, Dr. Flight's *Chapter in the history of Meteorites*, we find the two words used indiscriminately.

REACHING THE NORTH POLE.

Some years since Dr. Nansen achieved great distinction by crossing Greenland. In 1893 he started with five years' provisions and the full intention of reaching the North Pole. A telegram has arrived from Irkutsk, in Siberia, stating that he has reached the Pole, found land in the neighbourhood, and is returning. All honour to the "Hardy Norseman" if he really has succeeded.

CLIMATOLOGICAL TABLE FOR THE BRITISH EMPIRE, SEPTEMBER, 1895.

STATIONS. (*Those in italics are South of the Equator.*)	Absolute. Maximum. Temp.	Absolute. Maximum. Date.	Absolute. Minimum. Temp.	Absolute. Minimum. Date.	Average. Max.	Average. Min.	Average. Dew Point.	Average. Humidity.	Absolute. Max. in Sun.	Absolute. Min. on Grass.	Total Rain. Depth.	Total Rain. Days.	Aver. Cloud.
	°		°		°	°	°	0-100	°	°	inches		
England, London	82·8	24	42·6	22	73·7	51·5	53·7	86	121·3	33·5	1·28	2	2·6
Malta	90·1	13	57·7	1	84·0	67·3	64·2	70	144·5	56·8	·13	1	2·3
Mauritius	78·4	21	59·7	3	76·4	64·7	60·9	76	126·4	49·6	·83	15	5·6
Calcutta	92·4	15*a*	74·2	28	89·3	78·7	76·8	80	159·5	73·1	4·03	10	6·3
Bombay	88·1	28	71·2	8	83·8	76·1	75·0	85	140·9	70·0	11·91	21	7·7
Ceylon, Colombo	88·4	2	74·0	29	87·1	77·6	71·9	75	156·0	70·0	4·09	23	6·7
Melbourne	...	...	...	...	...	...	...	..	...	...	...	...	...
Adelaide	79·8	2	38·9	18	66·3	48·2	45·3	64	140·5	32·4	1·41	14	5·1
Sydney	83·8	9	43·9	23	68·1	51·8	57·0	62	133·0	31·1	3·64	12	3·3
Wellington	65·0	22	37·0	2	57·8	46·7	..	...	128·0	26·0	2·98	12	4·9
Auckland	66·0	10*b*	42·0	2	61·2	48·9	45·8	71	127·0	39·0	5·21	19	5·4
Jamaica, Kingston	93·3	19	71·2	8	89·3	74·1	70·8	80	...	...	1·78	6	4·4
Trinidad	93·0	13	68·0	13	88·7	72·0	72·1	76	172·0	67·0	5·69	15	...
Grenada	86·4	4	72·6	30	83·8	75·4	71·4	76	156·8	...	11·83	21	4·1
Toronto	93·1	11	36·3	...	70·8	50·5	51·7	75	103·0	30·4	2·45	13	4·5
New Brunswick, Fredericton	...	...	...	...	...	...	...	...	...	...	...	...	...
Manitoba, Winnipeg	82·3	1	23·0	30	64·8	39·0	...	...	...	...	1·14	15	6·0
British Columbia, Esquimalt	67·3	28	35·1	21	60·4	45·2	48·9	84	...	...	1·29	21	6·9

a—and 24; *b*—and 17.

REMARKS.

MALTA.—Adopted mean temp. 74°·6, 0°·7 below the average. Mean hourly velocity of wind 5·8 miles. Mean temp. of sea 78°·6. Thunderstorm on 18th. Lightning on 6 days. J. F. DOBSON.

Mauritius.—Mean temp. of air 0°·1 above, of dew point 1°·0 above, and rainfall ·60 in. below, their respective averages. Mean hourly velocity of wind 10·7 miles, or 1·3 miles below average; extremes, 23·3 on 1st, and 1·7 on 3rd; prevailing direction, E.S.E. C. MELDRUM, F.R.S.

Adelaide.—Mean temperature 0°·1 above, rainfall ·39 in. below, the average of 38 years. C. TODD, F.R.S.

Sydney.—Mean temperature 1°·2 above, humidity 9 below, and rainfall ·41 in. above, their respective averages. H. C. RUSSELL, F.R.S.

Wellington.—Showers at intervals in the early part of the month with strong N.W. winds; fine during the middle, with moderate N.W. winds; from the 20th to the end of the month showery, but at times very fine and pleasant. Thunder on 10th, 21st and 23rd. Slight earthquake on 13th. Mean temp. 1°·3 above, and rainfall 1·28 in. below, the average. R. B. GORE.

Auckland.—The early portion of the month was showery, but warm and genial; the middle of the month dry and unusually warm. From the 21st to the close wet and stormy, with occasional thunderstorms. T. F. CHEESEMAN.

JAMAICA, KINGSTON.—Mean hourly velocity of wind 7·3 miles. Rainfall two-fifths of the average. Slight shock of earthquake on 30th. R. JOHNSTONE.

TRINIDAD.—Rainfall 1·84 in. below the average of 30 years. J. H. HART.

SUPPLEMENTARY TABLE OF RAINFALL, JANUARY, 1896.

[For the Counties, Latitudes, and Longitudes of most of these Stations, see *Met. Mag.*, Vol. XIV., pp. 10 & 11.]

Div.	STATION.	Total Rain.	Div.	STATION.	Total Rain.
		in.			in.
II.	Dorking, Abinger Hall .	·84	XI.	Lake Vyrnwy	2·02
,,	Birchington, Thor	·84	,,	Corwen, Rhug	1·53
,,	Hailsham	1·15	,,	Carnarvon, Cocksidia ...	2·48
,,	Ryde, Thornbrough	·99	,,	I. of Man, Douglas	2·49
,,	Emsworth, Redlands ...	1·15	XII.	Stoneykirk, Ardwell Ho.	2 44
,,	Alton, Ashdell	1·31	,,	New Galloway, Glenlee	3·80
III.	Oxford, Magdalen Col..	·60	,,	Lilliesleaf, Riddell	1·25
,,	Banbury, Bloxham	·82	XIII.	N. Esk Res. [Penicuick]	1·10
,,	Northampton, Sedgebrook	1·31	,,	Edinburgh, Blacket Pl..	·84
,,	Alconbury	·99	XIV.	Glasgow, Queen's Park..	1·54
,,	Wisbech, Bank House...	1·16	XV.	Inverary, Newtown	5·56
IV.	Southend	·79	,,	Oban, The Corran	...
,,	Harlow, Sheering..... ...	·84	,,	Islay, Gruinart Schools..	3·29
,,	Colchester, Lexden	1·04	XVI.	Dollar.....	2·35
,.	Rendlesham Hall	1·24	,,	Balquhidder, Stronvar...	4·82
,,	Diss	...	,,	Ballinluig	1·36
,,	Swaffham	1·54	,,	Dalnaspidal H.R.S.....	4·93
V.	Salisbury, Alderbury ...	·94	XVII.	Keith H.R.S.....	1·32
,,	Bishop's Cannings	·87	,,	Forres H.R.S.	1·28
,,	Blandford, Whatcombe .	1·34	XVIII.	Fearn, Lower Pitkerrie..	...
,,	Ashburton, Holne Vic...	1·69	,,	N. Uist, Loch Maddy ...	5·41
,,	Okehampton, Oaklands.	1·55	,,	Invergarry.....	6·02
,,	Hartland Abbey	1·34	,,	Aviemore H.R.S.	2·31
,,	Lynmouth, Glenthorne.	·61	,,	Loch Ness, Drumnadrochit	3·05
,,	Probus, Lamellyn	1·42	XIX.	Invershin	1·64
,,	Wellington, The Avenue	·69	,,	Scourie	6·93
,,	Wincanton, Stowell Rec.	1·12	,,	Watten H.R.S.....	1·65
VI.	Clifton, Pembroke Road	·60	XX.	Dunmanway, Coolkelure	3·47
,,	Ross, The Graig	·37	,,	Cork, Wellesley Terrace	1·11
,,	Wem, Clive Vicarage ...	·84	,,	Killarney, Woodlawn ...	2 78
,,	Cheadle, The Heath Ho.	1·40	,,	Caher, Duneske	·89
,,	Worcester, Diglis Lock	·44	,,	Ballingarry, Hazelfort...	1·23
,,	Coventry, Coundon	1·33	,,	Limerick, Kilcornan ...	1·35
VII.	Ketton Hall [Stamford]	·77	,,	Ennis.....	...
,,	Grantham, Stainby	1·04	,,	Miltown Malbay	2·51
,,	Horncastle, Bucknall ...	1·01	XXI.	Gorey, Courtown House	1·02
,,	Worksop, Hodsck Priory	·69	,,	Athlone, Twyford	1·86
VIII.	Neston, Hinderton	1·26	,,	Mullingar, Belvedere ...	1·69
,,	Southport, Hesketh Park	·83	,,	Lougford, Currygraue...	2·04
,,	Broughton-in-Furness ...	4·56	XXII.	Woodlawn	2·77
IX.	Ripon, Mickley.....	·64	,,	Crossmolina, Enniscoe ..	2·74
,,	Melmerby, Baldersby ...	·51	,,	Collooney, Markree Obs.	1·92
,,	Scarborough, Obs.	·86	,,	Ballinamore, Lawderdale	2·78
,,	Middleton, Mickleton ...	1·82	XXIII.	Lough Sheelin, Arley...	1·95
X.	Haltwhistle, Unthank...	1·95	,,	Warrenpoint.....	1·94
,,	Bamburgh	1·32	,,	Seaforde..	1·67
,,	Keswick, The Bank	3·20	,,	Belfast, Springfield	2·30
XI.	Llanfrechfa Grange	1·03	,,	Bushmills, Dundarave..	2·24
,,	Llandovery	2·20	,,	Stewartstown	1·55
,,	Castle Malgwyn	1·90	,,	Killybegs	4·29
,,	Builth, Abergwesyn Vic.	3·61	,,	Lough Swilly, Carrablagh	2·72
,,	Rhayader, Nantgwillt ...	2·75			

JANUARY, 1896.

Div.		STATIONS. [The Roman numerals denote the division of the Annual Tables to which each station belongs.]	RAINFALL. Total Fall.	Difference from average 1880-9.	Greatest Fall in 24 hours. Depth	Greatest Fall in 24 hours. Date	Days on which ·01 or more fell.	TEMPERATURE. Max. Deg.	Max. Date	Min. Deg.	Min. Date.	No. of Nights below 32°. In shade.	No. of Nights below 32°. On grass.
			inches.	inches.	in.								
I.	ENGLAND.	London (Camden Square) ...	·78	— ·84	·22	25	9	52·7	17	28·0	20	8	13
II.		Maidstone (Hunton Court)...	·90	— ·65	·34	12	3	...	...	...	...	...	...
,,		Strathfield Turgiss	·45	— 1·36	·08	24*a*	10	53·7	17	22·2	20	10	14
III.		Hitchin	·70	— ·84	·24	24	11	51·0	2, 25	23·0	22	13	...
,,		Winslow (Addington)	1·14	— ·67	·33	24	12	52·0	15*a*	23·0	20	9	16
IV.		Bury St. Edmunds (Westley)	1·51	+ ·04	·44	24	8	52·0	2	25·0	23	...	...
,,		Norwich (Brundall)	1·01	...	·30	13	16	52·0	2	24·8	21	9	17
V.		Weymouth(LangtonHerring)	1·09	— 1·25	·26	24	12	53·0	25	29·0	10	7	...
,,		Torquay (Cary Green)	·64	...	·17	24	12	53·8	26	31·0	7	2	12
,,		Polapit Tamar [Launceston]..	1·11	— 1·91	·31	13	16	54·7	1	22·8	6	9	13
VI.		Stroud (Upfield)	·50	— 1·70	·15	24	10	51·0	26	27·0	21	12	...
,,		ChurchStretton(Woolstaston)	1·00	— 1·16	·25	15	14	52·5	2	24·0	21*d*	9	20
,,		Tenbury (Orleton)	·63	— 1·51	·22	24	8	54·4	17	23·5	21	8	13
VII.		Leicester (Barkby)	1·04	— ·72	·26	24	11	53·0	2	17·0	22	16	22
,,		Boston	·96	— ·43	·21	25	11	50·0	25	27·0	20	11	...
,,		Hesley Hall [Tickhill].....	·47	— 1·30	·10	10	12	54·0	2	25·0	21	10	...
VIII.		Manchester(PlymouthGrove)	·75	— 1·71	·21	14	10	53·0	2	27·0	20	6	9
IX.		Wetherby (Ribston Hall) ..	·12	— 1·77	·05	14	3	...	...	...	...	...	...
,,		Skipton (Arncliffe)	4·44	— 1·20	1·48	24	19	..	...	...	...	...	...
,,		Hull (Pearson Park).	·75	— 1·02	·21	13	10	53·0	2	25·0	23*e*	13	17
X.		Newcastle (Town Moor)	1·36	— ·45	·32	26	13	...	...	...	...	...	...
,,		Borrowdale (Seathwaite).....	10·90	— 1·28	2·20	24	15	...	...	...	...	...	...
XI.	WALES.	Cardiff (Ely).....	1·25	— 2·04	·56	24	11	...	...	...	...	...	...
,,		Haverfordwest	1·87	— 2·55	·69	24	17	52·6	2	26·0	21	5	15
,,		Aberystwith (Gogerddan) ...	2·71	— ·82	1·00	24	12	53·0	1	...	..	...	...
,,		Llandudno.....	1·20	— 1·08	·35	14	9	55·5	2	31·0	23	...	...
XII.	SCOTLAND.	Cargen [Dumfries]	2·11	— 1·66	·56	1	12	50·4	17*b*	21·2	23	9	..
,,		Jedburgh (Sunnyside).....	·90	— ·82	·25	15	11	52·0	27	17·0	23	13	...
XIV.		Colmonell	2·75	...	·60	15	13	57·0	27	22·0	9, 22	10	...
XV.		Lochgilphead (Kilmory).....	4·09	— 2·05	·71	26	21	...	...	23·0	22	8	...
,,		Mull (Quinish).....	3·79	— 1·88	·61	26	20	...	...	...	...	...	...
XVI.		Loch Leven Sluices	1·70	— 1·20	·50	15	9	...	...	...	...	...	...
,,		Dundee (Eastern Necropolis)	·80	— 1·17	·20	14	14	53·0	17	22·0	23	11	...
XVII.		Braemar	1·86	— ·83	·60	27	14	47·3	17	18·2	23	18	26
,,		Aberdeen (Cranford)	·60	...	·12	15	13	52·0	17	28·0	9*f*	21	..
XVIII		Strathconan [Beauly]	6·00	+ 1·12	1·00	15	16	...	...	...	...	...	...
,,		Glencarron Lodge.....	10·41	...	1·34	16	23	55·4	27	22·9	9	15	...
,,		Cawdor [Nairn]	1·54	— ·63	·36	14	14	...	...	...	...	...	...
XIX.		Dunrobin	2·97	+ ·51	·53	14	14	55·0	18	28·5	9	9	...
,,		S. Ronaldsay (Roeberry).....	2·91	— ·04	·55	18	23	48·0	16*c*	26·0	14	6	...
XX.	IRELAND.	Darrynane Abbey.....	2·15	...	·71	24	16	...	...	...	...	...	...
,,		Waterford (Brook Lodge) ...	1·20	— 2·36	·42	24	11	55·0	17	26·0	21	4	...
,,		O'Briensbridge (Ross)	1·38	...	·42	24	12	...	...	...	...	...	...
XXI.		Carlow (Browne's Hill)	·86	— 2·04	·20	24	11	...	...	...	...	...	...
,,		Dublin (FitzWilliam Square)	·72	— 1·14	·21	13	14	56·8	2	27·9	21	3	8
XXII.		Ballinasloe	1·59	— 1·49	·40	1	20	54·0	2	21·0	10	9	...
,,		Clifden (Kylemore)	4·45	...	·85	23	16	...	...	...	...	...	...
XXIII		Waringstown	1·99	— ·66	·40	14	14	53·0	1, 2	25·0	9*g*	11	13
,,		Londonderry (Creggan Res.).	2·69	— ·73	·71	14	17	...	...	...	...	...	...
,,		Omagh (Edenfel).....	1·79	— 1·23	·47	14	14	52·0	26	23·0	9	7	14

+Shows that the fall was above the average ; —that it was below it.

a—and 25. *b*—and 18, 27. *c*—and 17, 27. *d*—and 22. *e*—and 24. *f*—and 14, 21. *g*—and 19, 20, 22.

METEOROLOGICAL NOTES ON JANUARY, 1896.

ABBREVIATIONS.—Bar. for Barometer; Ther. for Thermometer; Max. for Maximum; Min. for Minimum; T for Thunder; L for Lightning; T S for Thunderstorm; R for Rain; H for Hail; S for Snow.

ENGLAND.

STRATHFIELD TURGISS.—The weather at first was dull and gloomy, but dry and settled until the 10th, when slight S fell, followed by light rains. The month generally was dry and very mild. Wren's nest with two eggs found on 18th; female flowers of hazel on 28th.

ADDINGTON.—A mild open month, with very little sunshine. The principal feature was the extremely high barometric pressure on the 9th and 10th, and again on the 30th. Buds on some trees getting very forward at the close.

BURY ST. EDMUNDS, WESTLEY.—A fine open month, with very little frost. Remarkable for the very high bar. of the 10th and 30th; S on 10th.

NORWICH, BRUNDALL.—A dry and mild month, with much haze and mist at times. No S all the month, and little frost, but the mean temp. was 1°·5 lower than in 1890. On the 9th the bar. (corrected and reduced) stood at 30·900 in.

WEYMOUTH, LANGTON HERRING.—The mean temp. at 9 a.m., 40°·9, is 2°·2 above the average of 24 years. The month was mild, and notwithstanding the very high bar. there was much damp weather. The readings of the bar. on the 9th and 10th were the highest since the register commenced, but were exceeded by ·01 in. on the 30th and 31st. Fogs on 1st, 18th, 25th, and 27th.

TORQUAY, CARY GREEN.—Rainfall 2·73 in. below the average. Mean temp. 43°·6, or 1°·9 above the average. Duration of sunshine 43 hours 40 minutes, being 27 hours 10 minutes below the average; 16 sunless days.

POLAPIT TAMAR [LAUNCESTON].—Though the atmosphere was generally very humid, the rainfall was very small. The month's rainfall is exactly the same as that of January, 1881, and the smallest in January since then. The mean of the max. and min. shade temperatures for the month is 41°·9. There were no storms, S, or H, and very little frost throughout. The bar. was remarkably high on the 9th, 10th, 29th, 30th and 31st. Thick fogs on 6th, 19th and 30th.

STROUD, UPFIELD.—S fell on 10th at 8 p.m.; gale in afternoon from N.W. on 15th.

WOOLSTASTON.—A beautiful open winter month, with frosts on the ground most nights. Mean temp. 39°·2.

TENBURY, ORLETON.—A warm dry month, with a mean temp. more than 3° above the average of 35 years. During the last 60 years there have been only four months of January with less R. Very little sun during the month, and for the first eight days the sun was never seen at all. S on 23rd; fog on many days.

LEICESTER, BARKBY.—A rather cloudy, but fine open month, with little R. High bar. readings in the first and last weeks. Mean temp. 38°·2.

MANCHESTER, PLYMOUTH GROVE.—Thick fog on 6th and 7th; dense fog on 8th, 12th, and 20th. Slight fall of S and sleet on 10th. Quite spring weather on 18th and 19th. Mean temp. 40°·5.

WALES.

HAVERFORDWEST.—The general character of the month was damp with a small rainfall; the smallest excepting January, 1855 (in which month only ·56 in. fell) in 47 years. From the 6th to the 12th low temp. prevailed, and again from 18th to 23rd it was very cold, but mostly overcast. The weather of the whole month was dull and cheerless and excessively damp. Remarkably high bar. readings occurred at 9 p.m. on 9th (30·984 in.), and 9 p.m. on 30th (30·927 in.)

ABERYSTWITH, GOGERDDAN.—A very quiet sunless month, with very high bar. readings.

SCOTLAND.

CARGEN [DUMFRIES].—The feature of the month was the high bar. pressure. The mean, 30°·151 in., has been several times exceeded, but the reading on the 9th, 30°·928 in., has never previously been reached since observations commenced in 1860, the nearest approach being 30°·838 in. on 18th January, 1882. Extraordinary high pressure was recorded during the seven days 5th to 11th inclusive and during the last three days of the month. Between the 11th and 15th the bar. fell 1·63 in., and on the 15th a pretty severe westerly gale occurred. The mean temp. of the month is 2°·7 above the average, and has only five times been exceeded in 37 years, the highest mean temp. being 43°·1 in January, 1882. Rainfall is much below the average, and except on the 1st was of a very light nature. Sunshine was again conspicuous by its absence, dull foggy weather prevailing during the month. Pastures were wonderfully fresh and green, an appreciable boon in the face of bare stackyards and a rapidly diminishing store of roots.

JEDBURGH.—The temp. generally was high, especially during the day. The wind mostly S.W. and W. The rainfall has been less in only five Januaries during 32 years. Outdoor work never suspended and farm work far advanced. Birds mating. Bar. very high from 4th to 13th. S 3 inches deep on 14th. Snowdrops in bloom on 22nd, yellow aconite in bloom on 24th.

COLMONELL.—Rainfall 2·04 in. below the average of 20 years.

MULL, QUINISH.—Excepting from 15th to 19th, the month was exceptionally fine and mild. Temp. at 9 a.m. on 27th, 50°.

ABERDEEN, CRANFORD.—A very dry month all through.

S. RONALDSAY, ROEBERRY.—A fairly good month upon the whole. Bar. on 9th the highest recorded for 25 years. Mean temp. (39°·6) 1°·9 above the average.

IRELAND.

DARRYNANE ABBEY.—A very fine and remarkably mild month with very high bar. Slight frost on ground on 21st and 22nd. Fuchsias coming into leaf, and crocuses and daffodils in flower, at the close.

O'BRIEN'S BRIDGE, ROSS.—Mild open weather up to 12th, with remarkably high bar. and wind light from N. to N.E. Slight frosts from 18th to 22nd and frosty and bright at the close.

DUBLIN.—January proved very mild, often dull and damp with frequent, but scanty, rainfall. S on only one day and no H. It afforded a complete contrast in every particular to the severe January of 1895, and will be especially memorable for the record breaking readings of the bar. on the 9th (31·020 in. at 10 a.m.). The mean temp., 44°·3, is 2°·9 above the average. Lunar haloes were seen on the 19th and 24th. The atmosphere was foggy on 9 days. High winds occurred on 9 days, reaching the force of a gale on 2 days.

WARINGSTOWN.—At 3 p.m. on 9th the bar. (cor. and red.) stood at 31·059 in., a point never before reached here.

OMAGH, EDENFEL.—It is only by usage that the January just past can be called a winter month, as there was not a wintry day in it. The ground was not once white with S, and hardly once with hoar frost. With a rainfall below, a temp. above, the average and two anticyclonic periods of extraordinary intensity, the month altogether was more of an early autumnal than a winter character.